

REMARKS

The application has been amended and is believed to be in condition for allowance.

Claims 7-8 were indicated to be directed to allowable subject matter.

Claims 1, 14, and 20 are independent.

Applicants appreciate the Response to Arguments section of the Official Action (page 9) which indicated that the claims were being read onto a single management table used for multiple storage components.

The claims have been amended to clarify that each of the storage components has their own management table, separate from the management tables of the other storage components.

This amendment makes clear that the plural storage components do not share a common/single management table. For example, claim 1 now recites "a management table that has a first management item and a second management item, said management table of said first storage component being separate from a corresponding management table of said second storage component".

The Official Action's comments concerning identifying the storage components as physically independent storage devices are also noted. This feature has been clarified with the recitation "wherein the first and second storage components are physically independent storage devices that are connected via the network".

Claims 1, 14, and 20 were rejected as indefinite; the Official Action stating that the term "control unit" lacked antecedent basis.

The claims have been amended responsive to this rejection. Withdrawal of the rejection is solicited.

Claims 1, 2, 14, 15, and 20 were rejected as anticipated by SHINMURA 5,193,171.

Claims 3-6, 9-13, and 16-19 were rejected as obvious over SHINMURA in view of KANAI 2002/0152181.

In view of the present amendments, it is believed that the claims clearly recite the invention in a manner both novel and non-obvious over the prior art.

In the present invention, when a data update occurs in one storage component, that storage component generates update information about the first data of its management table and sends the update information to the other storage components (see the dependent claims). Receiving the update information, the other storage components update the second data of their management tables with the received update information (again, see the dependent claims). With such an operation, each storage component always has the up-to-date management table regarding all storage components connected via the network.

Therefore, when one storage component receives a registering instruction of the data from a user, the storage component can reply to the registering instruction without

inquiring to the other storage components, as to the usage state of the user. In this way, the present invention does not need to have an apparatus for managing, unitarily, content recording information about contents recorded by users.

In contrast, SHINMURA neither teaches nor suggests that each storage component has a separate management table, as recited. This is acknowledged by the Official Action. Additionally, KANAI does not teach or suggest such an arrangement.

Referring to Figure 1, a storage system according comprises plural of physically independent storage devices, i.e., components, connected to one another via a network 2.

Each of the storage components includes a management table(s) having a first management item and a second management item. The first management item manages, for each user, storage capacity in use by users in each of the storage components 11 to 1N on the network 2. The second management item manages, for each user, the total storage capacity each user is allowed to use in all the storage components on the network. On the basis of this management table, the storage capacity used by a user is restricted so as not to exceed the total storage capacity the user is allowed to use.

As illustrated by Figure 3, the first management table 14 of each storage component includes the storage capacity in use by users in each of the recording units 13 of all the storage

components 11 to 1N. More specifically, in the first management table 14 of each storage component, there is stored (A) the total storage capacity of the recording unit 13 of that specific individual storage component, (B) the storage capacity in use by each user A to X in the recording unit of each storage component, and (C) a time when data of item B was updated.

DEVICE NAME : STORAGE DEVICE 11

	(A) STORAGE CAPACITY	(B) STORAGE CAPACITY IN USE OF EACH USER					(C) DATA UPDATE TIME
		USER A	USER B	USER C	...	USER X	
STORAGE COMPONENT 11	200G	34M	33M	21G		12M	02/03/21 13:23:32
STORAGE COMPONENT 12	500G	300M	0M	10M		123G	02/03/11 13:23:32
STORAGE COMPONENT 13	300G	20M	33M	90G		12M	02/02/21 13:23:32
STORAGE COMPONENT 14	200G	50M	33M	100M		12M	02/03/20 13:23:32
...							
STORAGE COMPONENT 1N	500G	200G	33M	21M		12M	02/03/21 13:03:32

Figure 3

	(A) USABLE STORAGE CAPACITY	(B) DATA UPDATE TIME
USER A	500G	02/03/21 13:23:32
USER B	400G	02/03/31 13:23:32
USER C	500G	02/03/21 13:13:32
...		
USER X	450G	02/03/22 13:23:32

Figure 4

As illustrated by Figure 4, the second management table 15 includes, for each user, i) the total storage capacity each user is allowed to use, in total, in all the recording units 13 of the storage components 11 to 1N, and ii) the time this data was updated.

Beginning with published application paragraph [0036], the operation of this embodiment is described. When an individual storage component receives an instruction for recording or deleting contents into or from its recording unit 13, its control unit 17 recognizes a user that the recording instruction or deleting instruction is received from. After executing a deletion instruction, the storage capacity in use of each user is updated. However, when receiving a recording instruction, the control unit 17 of each storage component 11 to 1N determines (based on the first management table 14 and the second management table 15) whether executing the recording instruction would result in the storage capacity of the recording unit 13 used by the user exceeding the user's total allowed storage capacity. Only when it determined that the record operation would not exceed the user's total allowed storage capacity, the control unit 17 executes the recording processing.

The control unit 17 of each storage component 11 to 1N transmits the packets describing the data in the first management table 14 of its storage component to the storage components 11 to 1N. Thus, the first management item (comprising first data and second data), illustrated by Figure 3, is maintained and updated without the need for an apparatus for managing, unitarily, content recording information about the contents recorded by the users.

Neither SHINMURA nor KANAI teaches or suggests such storage components.

More specifically, there is no teaching or suggestion of connecting plural physically independent storage components with each storage component having its own, separate management table comprised of the recited first management item and second management item.

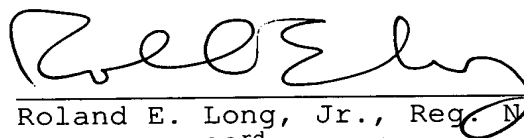
Reconsideration and allowance of all the claims are therefore respectively requested.

In view of the above, applicants believe that the present application is in condition for allowance and an early indication of the same is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Roland E. Long, Jr., Reg. No. 41,949  
745 South 23<sup>rd</sup> Street  
Arlington, VA 22202  
Telephone (703) 521-2297  
Telefax (703) 685-0573  
(703) 979-4709

REL/fb